File NR CS2-SWC8030

State of Washington
REPORT OF EXAMINATION
FOR WATER RIGHT CHANGE

Add or Change Purpose of Use ☐ Change Place of Use ☐ Add or Change Point of Diversion/Withdrawal ☒
Change Season of Use ☐ Add Irrigation Acres ☐ Well Consolidation ☐

PRIORITY DATE
January 10, 1941

WATER RIGHT NUMBER
8030

MAILING ADDRESS
CITY OF OLYMPIA
RICHARD T. HOEY
P.O BOX 1967
OLYMPIA WA 98507-1967

SITE ADDRESS (IF DIFFERENT)

Total Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
11,220	GPM	18,099

Purpose

	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		
PURPOSE	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	PERIOD OF USE (mm/dd)
Municipal	11,220		GPM	18,099		01/01 - 12/31

IRRIGATED ACRES		PUBLIC WATER SYSTEM INFORMATION	
ADDITIVE	NON-ADDITIVE	WATER SYSTEM ID	CONNECTIONS

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
Thurston	McAllister Gravel Aquifer		11-Nisqually

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
MCALLISTER WELLFIELD	21829230100		18N	01E	29	SE NW		

Place of Use (See Attached Map)

PARCELS (NOT LISTED FOR SERVICE AREAS)

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

The place of use (POU) of this water right is the City of Olympia water service area as described in the City's most recent Water System Plan approved by the Washington State Department of Health, so long as the water system is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

Proposed Works

Four to five 20 inch diameter wells drilled to an approximate depth of 280 feet, fitted with appropriate pumping capacity and distribution system required to supply water to municipal water supply customers.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Project has begun	December 31, 2040	December 31, 2050

Measurement of Water Use

How often must water use be measured?	Weekly
How often must water use data be reported to Ecology?	Annually (Jan 31)
What volume should be reported?	Total Annual Volume & Total Weekly Volume
What rate should be reported?	Weekly

Provisions

Mitigation

The use of water under this permit is subject to the fulfillment of the City of Olympia and Nisqually Indian Tribe McAllister Wellfield Mitigation Plan (December 2010) ("Mitigation Plan") and as amended below, and continued agreement between the cities of Olympia, Lacey, and Yelm through the supporting Amended Interlocal Agreement (presented in Appendix D of City of Lacey (2010)).

A single joint Mitigation Summary Report shall be prepared by the three cities and submitted to Ecology annually. At a minimum, the report shall include:

- Development and performance of the previous year's basin-specific (Woodland Creek, McAllister Creek, Nisqually River, and Deschutes River) out-of-kind mitigation actions. The section on the Deschutes River and Woodland Creek shall be jointly developed with the cities of Lacey and Yelm consistent with interlocal agreements between the cities;
- Development and performance of the previous year's basin-specific in-kind mitigation actions. The summary of performance shall be supported by available data (e.g. estimates of monthly infiltration rates at the Woodland Creek infiltration facility);
- Completed city-specific mitigation actions by basin;
- Applicable water right change authorization development, by phase (1, 2, and 3);
- Comparison between development and corresponding mitigation actions; and
- Identification of mitigation actions not completed, if any, including a revised schedule and proposed limitations on development until completed.

For brevity, the summary report may include appendices of construction and monitoring reports. The annual Mitigation Summary Report for the previous year is due to Ecology on January 31. The first summary report is due on January 31, 2013.

The third unnamed water right referenced under the Mitigation Plan in the Deschutes Basin is not a required mitigation element under this water right approval.

Measurements, Monitoring, Metering and Reporting
An approved measuring device must be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173, which describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

Water use shall be recorded weekly. Recorded water use data may be submitted via the Internet. To set up an Internet reporting account, contact the Southwest Regional Office. If you do not have Internet access, you can still submit hard copies by contacting the Southwest Regional Office for forms to submit your water use data.

Department of Ecology personnel, upon presentation of proper credentials, will have access at reasonable times, to the project location, and will be allowed to inspect, at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems to ensure there is compliance with the law.

Water Level Measurements
Static Water levels shall be measured and recorded monthly, using a consistent methodology. Data for the previous year shall be submitted by January 31 to the Department of Ecology.

Proof of Appropriation
The water right holder must file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the superseding permit. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

Findings of Facts
Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated.

Therefore, I ORDER the requested change to change the point of withdrawal to the McAllister Wellfield from the former point of diversion at McAllister Springs under Change Application No. CS2-SWC8030, subject to existing rights and the provisions specified above.

Signed at Olympia, Washington, this 21st day of October 2011.

Michael J. Gallagher
Section Manager
Water Resources Program -- Department of Ecology
Southwest Region

Your Right To Appeal

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of the Order.

File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.
- You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Address and Location Information

Street Addresses	Mailing Addresses
Pollution Control Hearings Board 111 Israel RD SW STE 301 Tumwater, WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia, Wa 98504-0903
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov. To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser.

INVESTIGATOR'S REPORT
Michael J. Gallagher, Department of Ecology
Water Right Control Number CS2-SWC8030
08030

BACKGROUND

Description and Purpose of Proposed Change

On October 16, 1995, Olympia filed an Application to Change Surface Water Certificate (SWC) 8030. The applicant requested authorization to change the source of water under this right from McAllister Springs to a well field.

Olympia provides retail water service within the incorporated city limits and it's Urban Growth Area (UGA). In 2007, as noted in its Water System Plan, Olympia served approximately 53,220 residents plus commercial and industrial uses and is anticipated to serve 104,800 residents plus commercial and industrial uses at full build out of their Urban Growth Area (UGA) by 2058. Olympia's water system consists of water withdrawal, conveyance, and treatment facilities. As stated in its 2009-2014 Water System Plan, Olympia's average municipal water production (2004 to 2007 data) is supplied by the McAllister Springs facility (84% or an annual average of 2,479 million gallons) and 6 wells (16% or an annual average of 474 million gallons), for a total average water production of 2,953 million gallons (or 9,058 afy).

Due to concerns about McAllister Springs vulnerability and new Safe Drinking Water Act regulations regarding the treatment of spring waters, Olympia is changing its water source from the McAllister Springs to the McAllister Wellfield, which is located about one mile SSE of the Springs. This move will avoid significant public costs. The configuration of the Springs and adjacent pond make the water susceptible to microbial contamination at certain times of year. This vulnerability requires construction of treatment facilities under the Safe Drinking Water Act Surface Water Treatment Rule by October 2012 at an estimated cost of $8 million. Additional filtration at an estimated cost of $35 million could be required in the future. Sea water intrusion is also a risk, as sea levels rise in the coming century. In addition, the springs are at risk from a catastrophic spill of hazardous material from the Burlington Northern rail line, which is immediately upgradient of the springs. The move to the wellfield will avoid the costs of responding to and potentially replacing this source as the result of a large scale spill. The City of Olympia will jointly develop the McAllister Wellfield with the Nisqually Indian Tribe. A Memorandum of Agreement (MOA) between the City and Tribe describes collaborative mitigation for predicted impacts in the Nisqually River, the formation of a Stewardship Coalition for the McAllister sub-basin, and long-term conservation of McAllister Springs. The MOA also provides for long-term use of and access to McAllister Springs to members of the Nisqually Indian Tribe.

The Nisqually Indian Tribe currently relies on shallow, low-producing wells in three main wellfields (Cuyamaca, Leschi, and Nisqually) on the Nisqually Reservation. All of the wellfields are in close proximity to the Nisqually River. The Tribe's wells withdraw water from an unconfined groundwater system, characterized by layers of glacial till and outwash. These geologic materials are not consistently saturated and do not provide a reliable source of water. The first consistent water-bearing unit below

the reservation is the Kitsap Formation, which is in contact with the Nisqually River in some areas. In other areas, this formation is in contact with the valley wall and forms springs such as Kalama Spring. The wells are low-producing and susceptible to contamination from land activities and nearby surface water. Over the past several years, the Tribe has evaluated options to secure a more sustainable and protected water source for its growing community. The Tribe has also sought options to reduce impacts of Tribal pumping on the Nisqually River.

The cities of Lacey and Yelm both have applications for new water rights withdrawing from the McAllister sub-basin, and Olympia has collaborated with these cities on impacts analysis and mitigation strategies through Interlocal Agreements. The unique regional mitigation package presented here provides for ecological benefits to water bodies in the Nisqually and Deschutes River basins. The combination of flow mitigation, infiltration of reclaimed water and retirement of existing water rights – combined with habitat acquisition and restoration projects in the Nisqually, Deschutes, and Woodland Creek areas -- present an overall benefit to these ecosystems.

Olympia's proposed McAllister Wellfield development will occur in three phases. Phase 1 would be completed by 2014 and would provide 17 MGD to Olympia. Phase 2 would be completed by 2030 and would provide 20.1 MGD (19.6 MGD for Olympia and 0.5 MGD for the Nisqually Tribe). Phase 3 would be completed by 2050 and would provide the full 26.06 MGD to Olympia (including 3.0 MGD to the Tribe) and would be the full use of existing and inchoate water that Olympia currently has.

The place of use is consistent with the City of Olympia's 2009-2014 Water System Plan, which is within the designated city service water area.

Attributes of the Existing Water Right and Proposed Change

Attributes	Existing	Proposed
Name	Olympia City	Olympia City
Priority Date	01/10/1941	
Change Application Date		10/16/1995
Instantaneous Quantity	25 cfs	25 cfs
Annual Quantity	18,099 af/yr	18,099 af/yr
Purpose of Use	CI MU	MU
Period of Use	Year Round	Year Round
Place of Use	Area served by the City of Olympia	Area served by the City of Olympia

Legal Requirements for Proposed Change

The following is a list of requirements that must be met prior to authorizing the proposed change to SWC 8030:

Public Notice

RCW 90.03.280 requires that notice of a water right application by published one a week, for two consecutive weeks, in a newspaper of general circulation in the area where the water is to be stored, diverted and used. Public Notice was published two times in The Olympian, a daily news paper with a current circulation of over 24,000 copies. There were two publications, commencing on April 21, 1996 and ending on April 28, 1996. Peak daily circulation was over 40,000 paid subscribers in 1998. No protests were received.

State Environmental Policy Act (SEPA)

Olympia is the lead agency for the SEPA determination proposal, as directed by Chapter 197-11-340 WAC. On April 5, 2011, the City of Olympia determined that this action of changing the water right point of diversion at McAllister Springs to a water right point's of withdrawal at McAllister Wellfield will not have a significant adverse impact upon the environment and that an Environmental Impact Statement is not required under Chapter 43.21C.030(2)(c). This decision was made after review of:

- Completed Environmental Checklist - dated March 21, 2011,
- Letter from Department of Ecology dated March 18, 2011, and
- The following supplemental reports, dated December 20, 2010:
    - City of Olympia and Nisqually Indian Tribe McAllister Wellfield Mitigation Plan;
    - Cultural Resource Assessment for McAllister Wellfield Transmission Line Project;
    - McAllister Transmission Line Geotechnical Engineering Report; and
    - Biological Evaluation for the McAllister Wellfield and Transmission Line;

Olympia's Determination of Non-Significance was issued under Chapter 197-11-340.

Water Resources Statutes and Case Law

The change to this water right is being processed under the provisions of RCW 90.03.570 which allow the change of an inchoate municipal surface water right under certain conditions. The conditions are:

(a) The supplier is in compliance with the terms of an approved water system plan or small water system management program under chapter 43.20 or 70.116 RCW that applies to the supplier, including those regarding water conservation;

(b) Instream flows have been established by rule for the water resource inventory area, as established in chapter 173-500 WAC as it exists on September 9, 2003, that is the source of the water for the transfer or change;

(c) A watershed plan has been approved for the water resource inventory area referred to in (b) of this subsection under chapter 90.82 RCW and a detailed implementation plan has been completed that satisfies the requirements of RCW 90.82.043 or a watershed plan has been adopted after September 9, 2003, for that water resource inventory area under RCW 90.54.040(1) and a detailed implementation plan has been completed that satisfies the requirements of RCW 90.82.043; and

(d) Stream flows that satisfy the instream flows referred to in (b) of this subsection are met or the milestones for satisfying those instream flows required under (c) of this subsection are being met.

Additionally, moving the point of diversion to a groundwater withdrawal requires compliance with the groundwater code (RCW 90.44), including a finding that there be no detriment to the public welfare and that the source of the existing diversion and the proposed point of withdrawal be part of the same water body.

These conditions have been met.

INVESTIGATION

In consideration of this change application, Ecology reviewed available reports relating to the application's site conditions, available and projected water demand, the potential effect on existing water right holders in the immediate area, applicable mitigation plan(s) from the cities of Olympia/Nisqually Indian Tribe, Lacey and Yelm, the modeled impacts of pumping at the new McAllister Wellfield will have to nearby basins, and established minimum instream flows. The review included information submitted by the applicant including well construction and testing reports, hydrogeological impacts analysis, proposed mitigation strategies and pertinent Ecology records and databases, including well logs and water right records. The review also included reports from multiple investigations characterizing the area hydrogeology, water quality of the Nisqually and Deschutes WRIAs, and documents relating to the watershed planning process.

Numerous meetings were held between Ecology and Olympia (along with the cities of Lacey and Yelm and the Nisqually Tribe). Site visits were conducted in September 2008 and October 2010.

In concert with this application, Olympia has also submitted two additional change applications (CS2-001105C and CS2-SWP10191), Lacey also submitted six new water right applications and Yelm submitted one new water right application. Coordination between the three cities included joint development of a regional groundwater model. The model was used to evaluate multiple scenarios, including individual and cumulative pumping impacts, as well as effectiveness of mitigation measures. Results of the modeling are the basis for development of mitigation actions, including those that are jointly proposed for Woodland Creek and the Deschutes River (in WRIA 13); and by the city and the Nisqually Indian Tribe in McAllister Creek and Nisqually River (in WRIA 11).

Using this information, we evaluated water availability and potential effects of the proposed appropriation upon existing groundwater and surface water rights, including instream flows, and water quality. Each of the four requirements specified in RCW 90.03.290 were individually examined and findings presented below. Ecology has evaluated this application individually, and in connection with

the other change applications filed by Olympia that are being processed at this time. In addition, Ecology has evaluated this application in the context of other applications filed by the cities of Lacey and Yelm that are being processed at this time. Accordingly, the following investigation focuses on this individual application, but also as appropriate considers and references Olympia's other applications and the Lacey and Yelm applications.

The regional groundwater model represents the best available science for analyzing the effects of groundwater pumping and making water rights decisions for large water right requests within the model's boundaries. However, for many of the water bodies evaluated, the predicted effects are very small relative to measured stream flows and/or the groundwater inflow to each water body. Furthermore, the conservative construction of the McAllister model potentially leads to over-prediction of depletions along the model boundaries, which includes the Deschutes River and Nisqually River.

History of Water Use

McAllister Springs, a naturally occurring surface water spring, located in Section 19, Township 18 North, Range 1 East of the Willamette Meridian has been the primary water source for Olympia since the 1940's. McAllister Springs are located at the headwaters of McAllister Creek in northeastern Thurston County. The water emerging from McAllister Springs is of high quality for drinking water purposes and other public uses. However, in recent years it has become apparent that McAllister Springs are vulnerable to potential contamination from the nearby location of the Burlington Northern Santa Fe (BNSF) rail line, and the potential for sea water inundation as sea levels may rise over the coming century.

In the mid-1990's, the City determined that the best solution was to move the City's water production site from McAllister Springs to groundwater wells, to be located in a wellfield about 0.8 miles southeast of the current Springs location.

In 1995, the City submitted a water right change application to transfer its existing surface water rights from the McAllister Springs (and Abbott Springs), totaling 26.06 million gallons per day (mgd) to the proposed McAllister Wellfield. In 1998, the City purchased a 20-acre parcel of property (Thurston County Tax Parcel # 21829230100) for the proposed wellfield site. Consultants under contract with the City installed two test wells and conducted aquifer pumping tests which verified that the proposed wellfield location is capable of producing the full 26.06 mgd with minimal drawdown.

Proposed Use

The change of this water right (along with Water Right Certificate S2-001105C – McAllister Springs and Surface Water Permit 10191 – Abbott Springs) to the new McAllister Wellfield is expected to start in late 2011 and will be conducted in three phases as outlined in the Table 1 below:

Phase	Expected Completion Date	Maximum Production in MGD	Cumulative Proportion of Build-Out
I	2011-2014	17	65%
II	2014-2030	20.1 (19.6 for Olympia and 0.5 for Nisqually Tribe)	77%
III	2030-2050	26.06 (23.06 for Olympia and 3.0 for Nisqually Tribe)	100%

Phase I production is targeted for completion no later than October 2014, when the Olympia plans to have completely transitioned its pumping from the McAllister Springs to the McAllister Wellfield. Under the federal Safe Drinking Water Act Long Term 2 Enhanced Surface Water Treatment Rule, Olympia must install additional disinfection treatment at McAllister Springs by October 2014 (assuming a 2-year extension is granted by the Washington Department of Health) or must develop a new source of supply. During Phase I, only 65% of the full build-out production volume is anticipated to be needed, based on Olympia's current demand. Following the transfer of production to the McAllister Wellfield at the end of Phase I, McAllister Springs will be taken out of service. Olympia and the Nisqually Tribe will enter into good faith negotiations on the future use of McAllister Springs and Abbott Springs properties with the intent to ensure a perpetual state of conservation for these properties. The Nisqually Tribe has strong cultural and spiritual connections to these springs, which are known to the Nisqually Tribe as "Medicine Springs".

Phase II production is anticipated some time during 2014-2030, when the Nisqually Tribe will begin producing from its well or wells located at the McAllister Wellfield. Production will also be increased as necessary to meet an anticipated demand by Olympia. It is estimated that by 2030, production will be 19.6 mgd for Olympia (the full quantity of the McAllister Springs water rights (8030 and 001105) and 0.5 mgd for the Nisqually Tribe (partial quantity of the Abbott Springs water permit (10191), amounting to approximately 77% of the full build-out production rate.

Phase III production reflects the long-term development under the full Abbott Springs water right to meet Olympia's and the Nisqually Tribe's 50-year planning horizon, and would be completed sometime between 2030 and 2050. Maximum production at full build-out will be 23.06 mgd for Olympia and 3.0 mgd for the Nisqually Tribe, expected by 2050.

Other Rights Appurtenant to the Place of Use

The changes in withdrawal of water authorized under this authorization will service the long-term needs of Olympia and the surrounding Urban Growth Area (UGA). Olympia's current water right portfolio includes 29,641.7 acre-feet in primary (additive) water rights from over 18 permits and certificates (see Table 2).

The current water system plan was approved by the Department of Health in September 2009. An update to the water system plan, including updated demand projections, is pending following processing of the above mentioned application(s).

Table 2 – City of Olympia's Water Right Portfolio

Table 2 is a summary of Olympia's water rights portfolio.

Source	Water Right Number	Priority Date	Qi in gpm	Qa in afy (Additive)	Qa in afy (Non-Additive)
Well 13 – Allison Springs (S09)	G2-27426C	8/13/86	900	800	N/A
Well 19 – Allison Springs (S11)	G2-27941C	8/13/86	1,200	900	N/A
Well 3 – Hoffman Well (S08)	G2-27225C	8/13/86	900	-	720
Well 11 – Shana Park (S10)	G2-27217C	8/13/86	900	-	1,143
Well – Kaiser Road (S03)	G2-24052C	1/29/76	380	450	N/A
McAllister Springs	S2-01105C	1/10/49	2,392	782	3,088
McAllister Springs	SWC 8030	1/10/41	11,220[1]	18,099	N/A
Abbott Springs	SWP-10191	6/8/55	4,488[2]	7,240	N/A
Well 20 – Indian Summer[3]	CG2-23683	1/28/75	125	201	N/A
Well 20 – Indian Summer	CG2-01116	4/30/71	400	57	N/A
Well 20 – Indian Summer	CG2-00979	3/7/69	155	41.5	N/A
Well 20 – Indian Summer	CG2-00213	10/12/71	170	30	N/A
Well - Briggs Nursery[4]	Cert. of Change 60	4/20/29	1,100	288	N/Ay
Well - Briggs Nursery	CS2-SWC2643	10/30/45	-	-	-
Well - Briggs Nursery	CS2-21810	1/23/74	-	-	-
Well - Briggs Nursery	CS2-21811	1/23/74	-	-	-
Well - Briggs Nursery	CG2-26836A	11/26/85	-	-	-
Brewery Wellfield[5]	(numerous)	1937 to 1982	2,172	761.2	N/A
TOTALs			26,502	29,649.7	4,951

Hydrologic/Hydrogeologic Assessment

Geologic Setting

The topographical features of the proposed McAllister Wellfield area are a result of erosional and depositional processes that occurred before, during and after the last glaciation. The proposed

[1] Certificate issued for 25 cfs, Qa based on 25 cfs converted to gpm and afy.
[2] Permit issued for 10 cfs, Qa based on 10 cfs converted to gpm and afy.
[3] The combined ground water rights G2-23683, G2-01116, G2-00979, and G2-00213 shall not exceed 850 gpm and 329.5 afy
[4] The total water use shall not exceed 1,100 gpm and 288 afy for the following water rights: 60, 2643, S2-21810, S2-21811, and G2-26836A.
[5] The brewery water rights total 6,515 gpm, 2283.53 AFY and are jointly owned by the cities of Lacey, Olympia, and Tumwater. The amounts shown represent Olympia's share of the rights.

McAllister Wellfield is located in a wide erosional channel feature that is drained by the Nisqually River and McAllister Creek, and is surrounded on the south, east and west by glacially deposited uplands.

The geologic framework for the McAllister Springs area has been evaluated in numerous studies. Detailed descriptions of the geologic conditions in the vicinity of McAllister Springs have been provided by Bretz (1910, 1911, 1913), Noble and Wallace (1966), Dion et al (1994), Pacific Groundwater Group (1993a, 1993b, 1997) and by others. The sediments in the McAllister Wellfield area are predominantly glacially deposited, with some units deposited during interglacial times. Both McAllister Springs and the McAllister Wellfield are located in an erosional valley feature that is partly filled with highly permeable gravel deposits known as the "McAllister Gravels". This predominantly gravel fill is over 400 feet thick and consists of cobbly sand and gravel deposits with variable amounts of silt.

The uppermost unit above the McAllister Gravels are Vashon Undifferentiated Glacial Deposits (Qvu). This unit consists of primarily recessional glacial deposits of sands and gravel sediments that were deposited by meltwater streams and Puget Lobe glacier as it retreated northward from the lower Nisqually Valley area. The thickness of the Qvu unit ranges from 0 to 150 feet.

Immediately below the Qvu Unit are the McAllister Gravels, which occupies an abandoned channel of the Nisqually River that was incised before the most recent Vashon Glaciation. The bulk of the sedimentary deposition within the former channel occurred toward the end of the Vashon Glaciation in the form of recessional outwash deposits by generally fast moving streams and mass wasting around ice remnants as the Vashon Glacier receded and climate warmed. Glacial moraine deposits are noted in the vicinity of Lake St. Clair, about 0.5 miles south of the McAllister Wellfield.

The erosional channel occupied by the McAllister Gravels is incised into adjacent uplands. The highly permeable McAllister Gravels Aquifer collects recharge from the surrounding uplands that lie to the south, southwest and southwest. A layered sequence of glacial and interglacial deposits occurs beneath the uplands. Deposits from the most recent glaciation (Vashon Stade of the Frasier Glaciation) are exposed at the land surface and overlie older glacial and interglacial deposits. The general thickness of the McAllister Gravels is about 300 feet thick.

Groundwater flow in the McAllister Gravels Aquifer is from south to north. Regional groundwater discharge is to McAllister Creek, primarily at McAllister and Abbott Springs, to the Nisqually River, to deeper regional aquifers, and ultimately to Puget Sound.

Immediately below the McAllister Gavels are older undifferentiated glacial deposits (Qu) that generally correspond to the Kitsap Formation (Qf), Salmon Springs Drift (Qc), and Unconsolidated and undifferentiated deposits (TQu). No wells in the immediate area of the McAllister Wellfield are known to penetrate below the McAllister Gravels into the Qu.

The McAllister Wellfield is located hydraulically upgradient of McAllister Springs and will intercept groundwater that would otherwise discharge at McAllister Springs.

The hydraulic gradient of the McAllister Gravels Aquifer is 0.001 to the north and the hydraulic conductivity is approximately 1,550 feet per day.

The McAllister Gravel Aquifer has a very high transmissivity. In the vicinity of the proposed wellfield, the McAllister Gravels Aquifer has a transmissivity range of 1,000,000 – 4,890,000 gallons per day per foot. Well yields are not expected to be limited by aquifer properties, but will be limited by the size of pump appropriate for the installed well casing diameter.

Due to the high permeability of the McAllister Gravel Aquifer, long-term drawdown at full build-out capacity is not expected to exceed 3.5 feet at a distance of 1,000 feet from the pumping center of each well. The target wellfield capacity at full build-out is expected to be 26.1 million gallons per day (18,125 gpm).

Water Resource Inventory Area 13

WRIA 13 includes the Deschutes River watershed and several other smaller watersheds, including the Eld, Budd, and Henderson Inlets. The Henderson Inlet watershed contains two major streams – Woodard and Woodland Creek – in addition to a half dozen smaller drainages that emanate from coastal valleys sloping toward Puget Sound. The headwaters of Woodland Creek begin on the Hawks Prairie upland, with a chain of lakes (Hicks, Pattison, and Longs Lakes) and interconnected wetlands. Below the headwaters, Woodland Creek is typically ephemeral, but a large spring just north of Martin Way provides perennial baseflow to the creek. In addition, several tributaries joining Woodland Creek below the springs also contribute to summer baseflow.

Due to the nature of the shallow soils and the generally flat topography of the upper Woodland Creek basin, it is estimated that a majority (80 to 90 percent) of the infiltrated precipitation either discharges directly to Puget Sound or across the WRIA 11 boundary to McAllister Creek and the Nisqually River system (Clingman 2001).

Minimum Instream Flows – WRIA 13

Chapter 173-513 WAC outlines an instream resources protection program and specifies minimum instream flows and surface water closures for the Deschutes River Basin and WRIA 13. The program effectively limits, and in some cases prohibits, the further issuance of consumptive water rights that could affect flows. Chapter 173-513 WAC also stipulates that lakes and ponds in WRIA 13 are to be "retained substantially in their natural condition while considering future allocations."

The Chapter 173-513 WAC specifies the Deschutes River, from river mile 41 to the confluence with Capitol Lake, is subject to instream flows and seasonally closed April 15 to November 1. In addition, Woodland Creek and all its tributaries, including Long, Pattison, and Hicks Lake, are closed to further consumptive appropriations, year round. This implies that no consumptive water is available following adoption of Chapter 173-513 WAC (June 24, 1980), unless it is verified that such appropriation would not adversely impact the neighboring closed water body.

Water Resource Inventory Area 11

WRIA 11 is divided into seven subbasins. The subbasins represent surface drainage areas of significant tributaries to the Nisqually River. However, subbasin delineation, similar to the boundaries of the WRIA, often do not correspond with groundwater divides or aquifer boundaries – such as the administrative delineation between the Yelm Creek and Thompson Creek upland of WRIA 11 and the McAllister Creek subbasin of WRIA 11.

The Nisqually Tribe and the WRIA 11 Planning Unit completed a Watershed Management Plan in October 2003. The main objective of the plan is to *"develop a comprehensive strategy for balancing competing demands for water, while at the same time preserving and enhancing the future integrity of the watershed."* The scope of the plan was focused on examining and presenting recommendations on five key issues: growth and land use, groundwater resources and supply, water rights, instream flow and surface to groundwater continuity, and water quality.

The plan presented several recommendations for processing water rights within WRIA 11. The recommendations include batch processing of water right applications by subbasin, along with filling identified data gaps prior to processing. The plan also offers 16 possible mitigation strategies for consideration in processing water rights.

Minimum Instream Flows – WRIA 11

Chapter 173-511 WAC outlines an instream resources protection program and specifies minimum instream flows for the Nisqually River Basin and WRIA 11.

Most applicable to Olympia's change application is the year-round closure of McAllister Creek and all its tributaries and Lake St. Clair. In addition, Chapter 173-511 WAC divides the mainstem Nisqually River into four stream management units (SMU): Lower, Bypass, Middle, and Upper Reaches. Chapter 173-511 WAC specifies control points (stream gages) for each of the four mainstem SMUs, and specifies minimum instream flows for all months of the year at each control point. The control point for the Lower Reach is located at river mile 4.3, which represents the reach between the influence of the mean annual high tide (at low flow conditions) and the outlet of the Centralia City Light Power Plant (river mile 12.6). In addition, the Bypass and Middle Reaches of the mainstem Nisqually River are closed to further consumptive appropriation from June 1 to October 15.

Flows in the Nisqually River are controlled by the Tacoma Power operated LaGrande Dam and the Centralia City Light operated river diversion near Yelm. These projects are regulated by the Federal Energy Regulatory Commission (FERC) and are required to be operated at a level that ensures sufficient instream flow for fish in the Nisqually River.

Predicted Impacts to Instream Flows and Closures

Hydrogeologic impacts associated with this application were evaluated through joint-development of a regional groundwater model with all project stakeholders. Based on the original Thurston County groundwater model developed by the United States Geologic Survey (Drost et al. 1999), the groundwater model was originally developed for Olympia for evaluating impacts to surface water bodies near McAllister Springs and Olympia's proposed McAllister Wellfield (Golder 2008). The model was subsequently updated and improved by the cities of Lacey, Olympia and Yelm to include additional surface water features and refinements in hydrostratigraphy. The cities of Lacey and Yelm also used the updated model to conduct evaluations of their proposed water right applications.

Modeled impacts due to moving from McAllister Springs to the McAllister Wellfield show an increase in flow in McAllister Creek because Olympia will no longer be pumping from McAllister Springs. The move

off the springs will benefit both water quantity and water quality in the creek. Flows are predicted to increase between 6.72 cfs to 18.72 cfs during the spring (May) through fall (September) months.

Cumulative impacts of all three of Olympia's change applications, including maximum annual predicted depletions (in cfs) and cumulative annual impacts (in afy) are presented in the City of Olympia and Nisqually Indian Tribe McAllister Wellfield Mitigation Plan (December 2010) and are summarized below:

Nisqually River Basin: 7.21 cfs and 3859 afy
McAllister Creek Basin: +6.72 to 18.72 cfs and +4865 to 13,553 afy
Deschutes River Basin: 0.37 cfs and 195 afy
Woodland Creek Basin: 0.23 cfs and 145 afy

These modeled impacts are calculated as the impact that will be seen in these four basins at full build-out of the McAllister Wellfield and with all three of Olympia's water rights at full beneficial use.

Cumulative regional impacts, including the proposed withdrawals for the cities of Lacey and Yelm are:

Nisqually River Basin: 6.47 cfs and 4625 afy
McAllister Creek Basin: +4.44 to 16.44 cfs and + 3215 to 11,903 afy
Deschutes River Basin: 0.7 cfs and 505 afy
Woodland Creek: 1.06 cfs and 631 afy

Olympia's and Nisqually Indian Tribe's Water Rights Mitigation Plan

To address the impacts to instream flows, the Mitigation Plan (Olympia and Nisqually Indian Tribe, December 2010[6]) was developed by the project stakeholders and submitted to Ecology for review. The Mitigation Plan is designed to mitigate for this water right change application and for the other two Olympia change applications: (CS2-001105C and CS2-SWP10191). As part of the development of the Mitigation Plan, Olympia developed collaborative mitigation strategies with the cities of Lacey and Yelm for the Deschutes and Woodland Creek Basins through Interlocal Agreements. Olympia and the Nisqually Indian Tribe also entered into an MOA to outline mitigation approaches to the Nisqually River. Olympia's move off of McAllister Springs will also have a regional impact for the cities of Lacey and Yelm and will contribute to the success of their mitigation plans.

The plan utilizes the benefit of both in-kind (direct replenishment of flow) and out-of-kind (riparian protection and habitat improvements). This is consistent with recommendations for mitigation outlined in the Nisqually Watershed Management Plan (WRIA 11).

A summary of mitigation actions proposed by Olympia and the Tribe (2010) by river basin and sub-basin is included in the sections below.

Based upon these modeled impacts, Olympia and the Tribe propose to mitigate for these impacts in the following manner.

[6] City of Olympia and Nisqually Indian Tribe McAllister Wellfield Mitigation Plan, December 2010

Nisqually River Basin

Olympia's predicted impact to the Nisqually River due to pumping of the new McAllister Wellfield is 3859 AFY. These predicted impacts will mainly affect the Lower Nisqually River where instream flows at RM 4.3 are generally met.

Pursuant to Chapter 173-511-030 WAC, the lower mainstem of the Nisqually River is open year-round to appropriation, subject to seasonal instream flows at river mile (RM) 4.3. At the present time, there is no flow gage at RM 4.3 for recording whether instream flows are met at this location. In addition, flows in the Nisqually River are mainly controlled by the Tacoma Power operated Alder and LaGrande Dams and the Centralia City Light operated river diversion near Yelm. These projects are regulated by the Federal Energy Regulatory Commission (FERC) and are required to be operated at a level that ensures sufficient instream flow for fish in the Nisqually River. Since water in the lower reach of the Nisqually River is available for appropriation at most times of the year, the Nisqually Tribe will conduct out-of-kind mitigation actions in the form of habitat restoration in Ohop and Muck Creeks, tributaries to the Nisqually River.

The second element of the Tribe's mitigation related to withdrawals from the McAllister Wellfield is the establishment of a Groundwater Protection Zone on the Nisqually Reservation. The Groundwater Protection Zone involves prohibiting additional future groundwater withdrawals near the Nisqually River as future Tribal water use will be served by water withdrawn at the McAllister Wellfield. Habitat restoration projects proposed by the Nisqually Indian Tribe provide net benefits for stream flows and substantial habitat benefits. These projects include wetland and riparian restoration, removal of bank armoring, invasive species control, and acquisition of wetlands and riparian areas along the Nisqually and its tributaries.

McAllister Creek Basin (including Lake St. Clair)

Regional mitigation in McAllister Creek will be provided by Olympia when Olympia transfers their water rights and surface water withdrawal from McAllister Springs to the new McAllister Wellfield. The McAllister Wellfield is located in Section 29, T18N, R1E WM, about one mile SSE of McAllister Springs.

There will be significant increase in flows to McAllister Creek as a result of the move off of McAllister Springs. This stream is a closed to additional withdrawal and has diminished flows. The move off the springs will benefit both water quantity and water quality in the creek. Flows are predicted to increase between 6.72 cfs to 18.72 cfs during the spring (May) through fall (September) months. Low dissolved oxygen and fecal coliform bacteria are identified as a water quality problem in McAllister Creek, and could be improved with increased flow from the springs (Watershed Plan, Recommendations MC-7 and MC-11, pages 132-133).

This is a net benefit to the flows of McAllister Creek.

A surface water right from the Schoepfer Whispering Firs Farms located upgradient of Lake Saint Clair was acquired by the City of Olympia to offset predicted impacts to the lake. The Schoepfer water right has a priority date of April 17, 1951, and authorizes irrigation of 20 acres and a withdrawal rate of 0.20 cfs (predicted depletions are 0.12 cfs). This water right would be permanently retired to offset any potential impacts to Lake St. Clair. Recreational, aesthetic, and groundwater recharge benefits at Lake St. Clair will not be impacted.

Woodland Creek Basin

The groundwater model predicted Olympia's impact to Woodland Creek due to pumping of the new McAllister Wellfield to be 145 AFY (0.203 cfs).

Offset of impacts to Woodland Creek will include both in-kind and out-of-kind mitigation. Regional in-kind mitigation with the City of Lacey will include groundwater recharge via infiltration of Class A reclaimed water produced at LOTT's Martin Way Reclaimed Water Plant. Location of the infiltration facility is in the Woodland Creek Basin, which is near the Woodland Creek Community Park in Lacey. Infiltration will be phased in to coincide with development of Lacey's and Olympia's permits. Reclaimed water will be infiltrated at a seasonal rate between 0.3 (winter) to 0.8 (summer) million gallons per day (mgd).

The modeled feasibility and effectiveness of infiltration of reclaimed water are presented in PGG (2010). The study indicates that seasonal infiltration of 0.3 to 0.8 mgd would provide an increase in Woodland Creek flow by 0.39 to 0.72 cfs, winter and summer, respectively. However, final infiltration rates will be determined by water quality permitting, and verified through performance monitoring. The cities have proposed to take an adaptive management approach for phasing in mitigation for Phases 1 and 2, and then Phase 3. Data collected during implementation of Phases 1 and 2 of mitigation will be used to further optimize design of the facility by the time Phase 3 water rights will be developed. However, the efficacy of mitigation is not anticipated to be sufficient to offset the Phase 3 summer impacts and Phase 2 and 3 winter impacts.

Specific to predicted impacts to the tri-lakes (Hicks, Pattison, and Long), no in-kind mitigation directly benefiting the surface water bodies is proposed.

Out-of-kind mitigation will include the acquisition of property and/or conservation easements along Woodland Creek to increase the amount of undeveloped protected land along the creek. As part of the regional mitigation package, the three cities will jointly purchase approximately 30-acres of undeveloped property in the basin.

Deschutes River Basin

Olympia's predicted impact of the amount of water that will not reach the Deschutes River due to pumping of the new McAllister Wellfield is 195 AFY.

Impacts to the Deschutes River Basin will be offset through joint regional mitigation measures, which will include both in-kind and out-of-kind methods. During the closed period (April 15-November 1), impacts will be partially mitigated through the acquisition and retirement of consumptive irrigation water rights.

Together, the three cities have purchased 270 acre-feet of certificated water rights from two separate irrigation certificates:

S2- 00972CWRIA (Dillard and Juanita Jenson): 100 afy and 0.50 cfs
G2-26862GWRIS (Ron Smith): 170 afy and 0.67 cfs

Out-of-kind mitigation is proposed to offset impacts during non-irrigation season, including land acquisition and habitat restoration. This includes the joint-purchase of over 200 acres of the Smith Farm, located on the upper reach of the Deschutes River, with over a mile of river frontage. Following acquisition of the property, a number of riparian and habitat projects will be completed, including: river channel improvements, reestablishment of wetlands, installation of a cribwall to prevent erosion, and planting of several low- and high-density riparian buffers.

APPLICATION EVALUATION

This Report of Examination (ROE) evaluates the application based on the information presented above and listed in the References section at the end of this ROE. To approve the application, Ecology must determine that each of the following four requirements has been satisfied:

(1) Beneficial Use: water would be put to a beneficial use;
(2) Availability: water is physically and legally available for;
(3) Impairment: the proposed change would not impair existing water rights; and
(4) Public Interest: the proposed change would not be detrimental to the public interest.

Water Availability

Both Chapters 173-511 WAC (Nisqually Basin) and 173-513 WAC (Deschutes Basin) state the purpose of the rules is to retain perennial rivers and streams with instream flows and levels necessary to provide protection for wildlife, fish, scenic-aesthetic, environmental values, recreation, navigation, and water quality.

The rules close portions of the Nisqually and Deschutes Rivers and some tributaries to further consumptive appropriations and establish specific instream flows on the rivers.

Olympia has proposed to use water for municipal supply purposes in a manner that is predicted to deplete flows in both the Deschutes River and Nisqually River in periods when the rivers are closed or when they are not meeting adopted instream flows.

Stream "closures" are determinations by Ecology under RCW 90.54.020 that water is not *available* for further appropriations. *See Postema v. PCHB*, 142 Wn.2d 68, 95, 11 P.2d 726 (2000). However, a stream closure may, in certain circumstances, be overridden under an exception that authorizes a new appropriation from a closed stream "in those situations where it is clear that overriding considerations of the public interest will be served." (RCW 90.54.020(3)(a). Similarly, under this statute an instream flow can be overridden if "overriding considerations of the public interests are served."

In making a statutory determination of overriding considerations of public interest under RCW 90.54.020(3)(a), the analysis applies three steps:

1. Determine whether and to what extent important public interests would be served by the proposed appropriation. The public interests served may include benefits to the community at large as well as benefits to the river or other environmental resources.

2. Determine whether and to what extent the proposed appropriation would harm any of the public interests (fish, wildlife, scenic, aesthetic, and other environmental and navigational values) protected by the closure and/or any other public interests.
3. Determine whether the public interests served (as determined in Step 1) clearly override any harm (as determined in Step 2).

The following sections of this report present this three-step OCPI analysis.

Analysis of Public Interests Benefitted by the Water Supply Proposal

When the total package of mitigation measures is considered, the Mitigation Plan proposed by Olympia and the Nisqually Tribe results in net ecological benefits for water resources specifically and natural resources generally.

The substantial water quantity mitigation provided by acquisition of two water rights acquired (Smith and Jensen) benefits the key reaches of water bodies at critical times of the year. For example, water quantity mitigation benefits target the upper and middle reaches of the Deschutes River, whereas the majority of the impacts occur in the lower reach of the river. The few water depletions predicted by modeling occur in less critical areas and in the winter and shoulder seasons that are less critical to the ecological values protected by regulations. In addition, timing of mitigation measures are phased to match development of the water right such that mitigation will occur at the same time or before the corresponding impacts take place.

Both Olympia and the Nisqually Tribe gain a secure, reliable long-term water supply that can support long-range planning and infrastructure investment. This will allow the Tribe to discontinue the use of less safe and reliable wells that exist in the shallow aquifer and to avoid relying on more such wells in the future. Olympia will address a public health directive from the Department of Health to avoid reliance on a surface water source (McAllister Springs) that is vulnerable to spills and contamination. The following paragraphs provide more detail regarding specific public benefits resulting from the Mitigation Plan.

Public Health Benefits. The Washington State Department of Health (DOH) has long encouraged the City to develop a reliable alternate source that is more protected from potential water quality problems. This is documented in correspondence from DOH to Ecology requesting expedited processing of the City's water rights change applications. The City also views this project as a high priority for protection of public health in its water service area.

The Nisqually Indian Tribe currently relies on shallow, low-producing wells in three main wellfields (Cuyamaca, Leschi, and Nisqually) on the Nisqually Reservation (Figure 1-1). All of the wellfields are in close proximity to the Nisqually River. The Tribe's wells withdraw water from an unconfined groundwater system, characterized by layers of glacial till and outwash. These geologic materials are not consistently saturated and do not provide a reliable source of water. The first consistent water-bearing unit below the reservation is the Kitsap Formation, which is in contact with the Nisqually River in some areas. In other areas, this formation is in contact with the valley wall and forms springs such as Kalama Spring. The wells are low-producing and susceptible to contamination from land activities and nearby surface water.

Over the past several years, the Tribe has similarly evaluated options to secure a more sustainable and protected water source for its growing community. The Tribe has also sought options to reduce impacts of Tribal pumping on the Nisqually River.

Public Water Supply Benefits. The McAlister Wellfield project would provide a significant source of public water for both the City of Olympia and the Nisqually Indian Tribe for the next 50 years. At this time, Olympia has 8.4 Million Gallons per Day in unmet demand by 2058, which is the city's 50-year planning horizon. For Olympia, the project would not just meet the intent of the Water Resources Act (RCW 90.54.010), and the Growth Management Act for public facilities and services (RCW 36.70A.020 (12)), but would also meet the requirements of Olympia's Comprehensive Plan Goal PF6.1, which states, "Reserve water supply rights for at least 50 years in advance of need, so that supplies can be protected from contamination or commitment to lower priority uses". Changing Olympia's water supply source to the McAllister Wellfield provides a measure of water security for the next 40 to 50 years for Olympia.

The City's Water System Plan, adopted by City Council and approved by WDOH, includes goals and strategies supporting development of the McAllister Wellfield water supply while protecting instream resources. Goal 1 for source of supply is to "Provide adequate supplies of water for future needs while protecting instream flows and sustaining the long-term capacity of the aquifer". The strategies adopted along with this goal include reserving water rights for a 50-year supply, multijurisdictional approaches to water rights and source development, and maintaining numerical models to understand aquifer and surface water dynamics over time. Goals 4 in the plan is "Improve, operate and maintain the infrastructure to ensure reliable delivery of high quality water to a growing population." The McAllister Wellfield is the first project identified under this goal and is also identified in the 2011-2016 Olympia Capital Facilities Plan. The City of Olympia has also made substantial investments in water conservation and reclaimed water, which will help to reduce demand and mitigate the potential impacts of climate change on future water supplies.

The source of supply provided by the McAllister Wellfield is also consistent with the goals of the 1996 North Thurston County Coordinated Water System Plan, which include:

- Discourage the proliferation of small, inadequate systems in the urban growth area; and
- Ensure reliable urban-level water service within the North Thurston County Urban Growth Management Area.

Regional coordination of water supply development and mitigation in the McAllister Sub-basin is a dominant theme in the Nisqually Watershed Management and Implementation Plans. The plans identify existing water right applications and identify priorities based on the level of information available for appropriate decision-making. The plan notes that, "the lack of processing threatens the ability of municipal water providers to supply water for future growth." The McAllister sub-basin is identified in the WRIA 11 Nisqually River Management Plan as the top priority for batch processing by Ecology. The WRIA Planning Unit determined that there was adequate information available for Ecology to process the water rights applications within that sub-basin and also recommends specific mitigation strategies (Implementation Plan, recommendations WR-1 and WR-3, page 16; Watershed Plan, recommendation WR-3, pages 53-54).

Nisqually River Benefits. The City and the Tribe are offsetting predicted flow depletions in the Nisqually River through coordination with Tacoma Power on dam releases and establishment of a Groundwater

Protection Zone on the Nisqually Indian Reservation. These efforts, in combination, will offset any impacts during rare low flow periods in the lower reach of the Nisqually River. In addition, as the lead entity for salmon recovery planning and coordination in the Nisqually Watershed, the Tribe has undertaken and planned a wide range of restoration projects that provide net benefits for stream flows and habitat. These projects include wetland and riparian restoration, removal of bank armoring, invasive species control, and acquisition of wetlands and riparian areas along the Nisqually and its tributaries.

Nisqually Indian Tribe Cultural Benefits. The Nisqually Indian Tribe is a federally-recognized Indian tribe and is the successor descendent entity of the Nisqually Nation signatory to the Treaty of Medicine Creek of 1854. The water source more recently known as McAllister Springs was historically known to the Nisqually Indian Tribe as Medicine Springs. Medicine Springs was an ancestral water source for the Nisqually Indian Tribe that had and continues to hold spiritual and cultural significance. The Olympia-Nisqually Indian Tribe MOU provides for the Springs to be managed in a "perpetual state of conservation necessary for spiritual and healing ceremonies" including substantial limits on access and structures.

Conservation of Public Funds. Olympia's need to change the source of municipal water supply from the existing McAllister Springs facility to the new McAllister Wellfield is driven by the federal Safe Drinking Water Act's Long Term Enhanced Surface Water Treatment Rule to install additional disinfectant treatment at the McAllister Springs facility. Because of the vulnerability of McAllister Springs, the rule would require construction of treatment facilities by October 2012 estimated at a cost of $8 million. Additional filtration at an estimated cost of $35 million could be required in the future. Avoiding the significant costs of treatment conserves scarce public resources and enables Olympia to make the investments in the Mitigation Plan and the more reliable and secure water source.

McAllister Creek Benefits. Moving Olympia's water right from McAllister Springs to the McAllister Wellfield will result in significantly increased flows to McAllister Creek. Flows are predicted to increase between 6.72 cfs to 18.72 cfs during the critical season of the year. Olympia plans to share this mitigation benefit with Lacey and Yelm. When Olympia changes the point of diversion from McAllister Springs to points of withdrawal at the McAllister Wellfield, the impacts to McAllister Creek flows from all three cities will be fully mitigated. Another important benefit will be maintaining McAllister and Abbot Springs in a perpetual state of conservation, and providing Nisqually Indian Tribal members with access to and use of McAlister Springs for cultural and spiritual purposes.

Deschutes River Benefits. The City and Tribe, in collaboration with the cities of Lacey and Yelm, are offsetting predicted flow depletions in the Deschutes River and significantly enhancing fish and wildlife habitat in the basin using two methods:

- Flow mitigation (in-kind) through acquisition and retirement of irrigation water rights, and;
- Land acquisition and habitat restoration (out-of-kind).

As part of a shared mitigation strategy, the cities of Olympia, Lacey and Yelm have purchased a farm (Smith Farm) along with its water right, and the water right from another farm (Jensen Farm), both of which are located in the Deschutes watershed. The cities would retire the water rights and conduct habitat improvement projects on the Smith Farm. The cities have acquired consumptive irrigation water rights that will mitigate predicted impacts by returning water to the river during most of the low-flow

closure period. Both water rights total 270 acre feet of water during the irrigation season (May through September). The cities gave higher priority to the acquisition of surface water rights in the upper and middle reaches of the Deschutes River, to ensure that mitigation was in the same reach as, or upstream of, predicted impacts. For Olympia, this approach provides a considerable amount of additional benefit to the upper and middle reaches of the river, since the majority of Olympia's predicted impacts are in the lower reach.

In addition, the three cities have proposed an out-of-kind mitigation package for the non-irrigation period (October through April) impacts on the Deschutes. The proposed out-of-kind mitigation will result in numerous habitat improvements on the Smith Farm including habitat enhancements to over one mile of mainstem riparian habitat on the Deschutes River, as well as side channel and wetlands enhancements. The Cities propose land acquisition and habitat restoration as the most appropriate strategy for "winter" impacts. These actions can have greater biological benefits during the winter than flow mitigation. For example, in the Deschutes, one of the primary limiting factors for fish in the winter is the availability of off channel rearing habitat and/or large woody debris that provide protection from high main stream flows. In addition, these restoration actions will have year-round (high flow and low flow) benefits and basin wide improvements in water quality.

The Cities have jointly purchased over 200 acres of farmland which is located in the upper reach of the Deschutes River. This property is currently a sheep ranch and has been altered considerably from a natural condition. The property includes Deschutes River frontage, most of the frontage of the outlet channel from Lake Lawrence, and springs that flow via the outlet channel to the Deschutes River. To evaluate the Smith Ranch's potential for water rights mitigation, the cities contracted with Anchor QEA to conduct an acquisition and restoration assessment of the site. Anchor QEA concluded that this site is uniquely situated to provide habitat restoration benefits.

Ecology's October 2008 Draft TMDL report for the Deschutes River recommends riparian plantings, stream channel restoration, reduction of fine sediments, and elimination of animal wastes to reduce temperatures, improve dissolved oxygen levels, and reduce fecal coliform bacteria.

Woodland Creek Benefits. The predicted impacts to Woodland Creek will be addressed with a combination of in-kind and out-of-kind mitigation. In-kind mitigation will include infiltration of Class A reclaimed water produced at LOTT's Martin Way Reclaimed Water Plant. The location of the infiltration facility is in the Woodland Creek Basin, near the Woodland Creek Community Center in Lacey. Reclaimed water will be infiltrated at a seasonal rate between 0.3 (winter) to 0.8 (summer) million gallons per day (mgd). Out-of-kind mitigation will be provided through property acquisition resulting in habitat preservation

Benefits to the Tri-lakes/Woodland Creek system include in-kind mitigation through the infiltration of Class A reclaimed water. Flow-related mitigation for all predicted impacts in the Woodland Creek basin (excluding Phase 2 and 3 during winter months) will occur through a regional reclaimed water infiltration facility to be located near the headwaters of Woodland Creek in Lacey. The facility will infiltrate reclaimed water year-round, with the purpose of recharging groundwater that provides base flows to Woodland Creek. The proposed infiltration facility will increase flows in Woodland Creek.

For winter periods when infiltration is less feasible, for regional mitigation the cities of Lacey and Olympia have purchased approximately 30 acres of undeveloped property in the basin that includes 2,200 feet of Woodland Creek frontage and 650 feet of Fox Creek frontage. Riparian land protection will supplement the available flow mitigation for winter months, and since the benefits will be year-round, this will further increase summer mitigation.

Analysis of Public Interests Potentially Harmed by the Proposal

Nisqually River Impacts. Olympia's change applications will result in an estimated depletion of 5.40 cfs (3,859 af annually) to the Nisqually River. The flow of the Nisqually River is controlled by releases at Alder Dam, and the releases are intended to ensure flows on the river are met and exceeded. Ecology's (2001) analysis indicates that on rare occurrences flows are not met on the lower reach at RM 4.3. On these rare occasions, up to 5.4 cfs modeled depletion could occur when flows are not met on the river.

Deschutes River Impacts. Olympia's withdrawal of water under this change is predicted to result in depletion of flows in the Deschutes River, which are estimated to be approximately 103 acre-feet per year during the non-irrigation period (October 1 through April). Flows are not met approximately 25 to 30 % of time during this period. In addition to the instream flows, the Deschutes River is closed to further appropriation in October. Therefore a portion of the depletion will occur when flows are not met or the Deschutes River is closed to further appropriation. The impacts to the Deschutes River basin are not being fully mitigated in-kind.

Woodland Creek Impacts. Olympia's impacts to Woodland Creek will largely be mitigated through the discharge and infiltration of reclaimed water in Woodland Creek Community Park as described above. Modeling has shown that in the dry season, the cities can infiltrate between 0.9 and 1.2 MGD of reclaimed water to the shallow aquifer compensating for decreased flows in Woodland Creek. In the wet season, only about 0.3 mgd can be infiltrated without causing adverse affects. The reduced amount of infiltration will occur during the wet season when flows in Woodland Creek are not at critical low flow. Woodland Creek is closed year-round and the winter impacts to the creek will not be fully mitigated in-kind.

Tri-Lakes Impacts. The McAllister Wellfield, at full build out, is predicted to have a maximum annual depletion of 0.20 cfs from the Tri-Lakes. This translates to a potential maximum decrease of less than one inch in lake levels. The lakes have a natural yearly variation of 0.5 to 4 feet. Whereas the impacts are small, the lakes are closed to further appropriation, which are not being fully mitigated in-kind.

Summary of OCPI Analysis

The conclusion of the OCPI analysis can only be reached by weighing the potential benefits and harms to the public interest. When all of the public interest benefits and harmed are compared, it becomes evident that the potential benefits clearly outweigh the potential harms. Although the Mitigation Plan provides in-kind mitigation in the form of purchased existing water rights, there are small depletions of the Deschutes River, Nisqually River, Tri-Lakes, and Woodland Creek that cannot be mitigated in-kind. These small depletions are the only public interest potential harms that have been identified in this evaluation. The package of in-kind and out-of-kind mitigation offered by the three cities and the Nisqually Indian Tribe will result in net ecological benefit and provide significant public health, safety and welfare benefits.

Olympia (together with Lacey and Yelm) proposes in-kind mitigation that addresses the majority of surface water depletions. The water quantity mitigation provided by acquisition of water rights (Smith and Jensen), along with reclaimed water infiltration, benefits the key reaches of water bodies at critical times of the year. In addition, water quantity mitigation benefits target the upper and middle reaches of the Deschutes River, whereas the impacts are centered in the lower reach of the river.

Impacts to McAllister Creek will be mitigated in-kind by Olympia moving their surface water diversion to a wellfield which will increase flows to McAllister Creek.

Although there will be impacts to the flows in the lower reach of the Nisqually River, the river flows are controlled by the city of Tacoma as required under its FERC license. Therefore, these mandated flows result in the Nisqually River rarely falling below the established instream flows.

The out-of-kind mitigation will improve environmental conditions in both the Woodland Creek and Deschutes watersheds. This includes mainstem, side channel, and wetland habitat enhancements in the Deschutes to benefit fishery and water quality and habitat protections in Woodland Creek to benefit fishery and water quality. The few unmitigated impacts to flow on the Deschutes River are during the closure period and are minor relative to the habitat, water quality, and flow enhancement benefits of the out-of-kind habitat restoration.

Impacts to the Tri-Lakes are small. Unmitigated impacts to Woodland Creek occur during the wetter season and will be compensated through out-of-kind mitigation by the purchase of land and riparian habitat in the watershed.

Public health improvement and long-term water supply security are key benefits of this project. Relocating from the springs to the wellfield will protect public health and risks to drinking water supplies for the Olympia and Nisqually Indian Tribe communities. The three changes from surface water diversion to ground water withdrawal which provides water security for 40 to 50 years into the future for Olympia and the Nisqually Indian Tribe.

Additionally, the use of reclaimed water, regional leadership and cooperation on water supply planning and mitigation of impacts, and Olympia's avoidance of costly surface water treatment all advance the public interest and will contribute to performance of the proposed Mitigation Plan benefits.

In summary, it is concluded that the public interest benefits of the subject change application requested by Olympia and the two additional change applications requested by Olympia, along with the water right applications requested by Lacey and Yelm, clearly override any public interest detriments associated with the subject application and with the three cities' new water supply and change of source projects.

Impairment Considerations

In an approximately one-half mile radius of the proposed point of withdrawal for SWC 8030 there are 4 Water Right Certificates, 1 Water Right Permit and 10 Water Right Claims. This number was determined by conducting a search of Ecology's Water Rights Database for Sections 29 and 30 in T18N, R1E, WM. These water rights are generally for stock watering, irrigation and general domestic purposes. The

largest certificated use in this area is for an annual withdrawal (Qa) of 200 acre-feet/year (and 400 gpm) for the irrigation of 70 acres (G2-*08197CWRIS). The well associated with this water right is located in the NW ¼ NW ¼ of Section 30, about one-mile due west of the McAllister Wellfield, which is well beyond the modeled drawdown contours of the Wellfield and full development.

According to Ecology's Statewide Well Log Database, there are 23 water wells in Sections 29 and 30 in T18N, R1E, WM. These wells range from 119 to 253 feet in depth, with one well (Olympia PW-24) being 400 feet in depth. The depth to static water level ranges from a minimum 74 feet to a maximum of 172 feet below the top of the well casing. This range on depth to static water level is more a function of the varying surface elevations of these wells above mean sea level. Where pumping information on the well log is available, drawdown during pumping is minimal and recovery is of very short duration. No impairment of nearby senior groundwater rights or existing exempt wells is expected.

Beneficial Use

Waters withdrawn from the McAllister Wellfield will replace waters diverted from McAllister Springs. The water will be used at rates consistent with established municipal demand in western Washington, including all standards required in the Department of Health's Water Use Efficiency Program. Specific information about how this water is delivered and managed in Olympia's water service area is presented in the City of Olympia's Water System Plan for 2009-2014.

Public Interest Considerations

The effects of this change application on the public interest are analyzed in the availability section above, where it was concluded that overriding consideration of the public interest clearly support approving the application.

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that the request to change to SWC 8030 be approved in the amounts and within the limitations listed below and subject to the provisions listed above.

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

11,220 gpm
18099 acre-feet per year
Municipal Supply

Point of Withdrawal

McAllister Wellfield, SE¼, NW¼, Section 29, Township 18 North, Range 1 E W.M. (up to 5 wells)

Place of Use

As described on Page 1 of this Report of Examination.

Michael J. Gallagher October 21, 2011

Michael J. Gallagher, LHG *Date*

If you need this publication in an alternate format, please call Water Resources Program at (360) 407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

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